

REMARKS

Claims 5 and 6 stand rejected for informalities. Claims 25-28 stand rejected under 35 U.S.C. § 112, first paragraph for failing to comply with the written description requirement. Claims 1, 3, 5-8, 12-16, 23-26, 29, and 31-35 stand rejected under 35 U.S.C. § 102(e) as being anticipated by United States Patent Publication 2004/0103337 by Smith (hereinafter “Smith”). Claims 9-11, 18-22, 27, 28, and 30 stand rejected under 35 U.S.C. § 103(a) as being obvious over Smith. Claims 2 and 4 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Smith in view of United States Patent Number 6,073,218 to DeKoning et al. (hereinafter “DeKoning”). Claim 17 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Smith in view of United States Patent Number 6,834,326 to Wang et al. (hereinafter “Wang”).

For the Examiner’s convenience and reference, Applicants’ remarks are presented in substantially the same order in which the corresponding issues were raised in the Office Action. Please note that the following remarks are not intended to be an exhaustive enumeration of the distinctions between any cited references and the claimed invention. Rather, the distinctions identified and discussed below are presented solely by way of example to illustrate some of the differences between the claimed invention and the cited references.

Applicants thank the Examiner for the telephone interview of September 19, 2006. As discussed, Applicants are amending claims 25-28 to remove the term “image” and amending the specification to include support for computer readable program code. Applicants have also added the limitations of claim 10, as well as claims 14-17 to the independent claims.

Claims 1, 13, 24, 25, and 29 are amended with the limitations of claims 7, 8, 10, 14-17,

19, 26, and 28. Specifically, “...detecting a RAID controller fault...” is the limitation of original claim 17 and disclosed in the specification, page 12, lines 23-24. The limitation “...retrieves RAID configuration information from the RAID controller...” is from original claim 15 and specification, page 14, lines 5-7. In addition, the limitation “...quiesces the RAID controller...” is from original claims 10, 19, and 26 and the specification, page 14, lines 15-17. The limitation “...the storage adapter emulates the RAID controller...” is from original claims 8, 14, and 26 and the specification, page 11, lines 14-17, while “...conducting RAID operations...” is from original claims 7 and 16 and the specification, page 15, lines 16-17.

Applicants have canceled claims 7, 8, 10, 14-17, 19, 26, and 28. In addition, Applicants have added new claims 36-38, each with the limitations of claims 11 and 20.

Response to objections for informalities.

Claims 5 and 6 stand rejected for informalities. Applicants have amended claims 5 and 6 as suggested and submit that the amendments cure the informalities.

Response to rejections of claims under 35 U.S.C. § 112 first paragraph.

Claims 25-28 stand rejected under 35 U.S.C. § 112 first paragraph as failing to comply with the written description requirement. Claims 26 and 28 are canceled. Claims 25 and 27 are amended to remove reference to an “image.” In addition, the paragraph starting on line 8 of page 11 in the specification is amended support the “computer readable program code” language of claims 25 and 27. The amendment relies on MPEP § 608.01(1), which states:

“In establishing a disclosure, applicant may rely not only on the description and drawing as filed but also on the original claims if their content justifies it.

Where subject matter not shown in the drawing or described in the description is claimed in the application as filed, and such original claim itself constitutes a clear disclosure of this subject matter, then the claim should be treated on its merits, and requirement made to amend the drawing and description to show this subject matter. The claim should not be attacked either by objection or rejection because this subject matter is lacking in the drawing and description. It is the drawing and description that are defective, not the claim.

It is, of course, to be understood that this disclosure in the claim must be sufficiently specific and detailed to support the necessary amendment of the drawing and description.”
MPEP § 608.01(l).

Applicants submit that claims 25 and 27 as amended, along with the amendment of the specification, are allowable.

Response to rejections of claims under 35 U.S.C. § 102.

Claims 1, 3, 5-8, 12-16, 23-26, 29, and 31-35 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Smith. Applicants respectfully traverse this rejection.

Claims 1, 13, 24, 25, and 29 are amended with the limitations of claims 7, 8, 10, 14-17, 19, 26, and 28. As a result, Applicants traverse the rejection of claims 1, 13, 24, 25, and 29 as though rejected under 35 U.S.C. § 103(a) as being obvious over Smith and as being unpatentable over Smith in view of Wang.

Applicants submit that neither Smith nor Wang teach *detecting a RAID controller fault, retrieving RAID configuration information from the RAID controller, quiescing the RAID controller, and directing storage commands to the storage adapter so that the storage adapter emulates the RAID controller in conducting RAID operations on a storage array* as claimed by the present invention. See claims 1, 13, 24, 25, and 29 as amended.

With regards to detecting a RAID controller fault, Wang teaches that “...if a RAID controller fails, it must be replaced by another controller of the same type.” Wang, Col. 21, Lines 51-52. Wang does not teach detecting a RAID controller fault as claimed by the present invention.

As to retrieving RAID configuration information from a RAID controller, Smith does not teach retrieving RAID configuration information. Applicants further submit that retrieving RAID configuration information is not inherent from the system of Smith. Smith teaches monitoring a RAID system for predictive failure analysis (PFA) triggering events that are known to the server. Smith, Page 2, ¶ 15, lines 1-7. If there is an event, the server sends a PFA initiation command to the disk drives of the storage array. Smith, Fig. 2, Ref. 66. Neither monitoring for PFA triggering events known to the server nor sending a PFA initiation command requires retrieving RAID configuration information from a RAID controller. Monitoring for PFA triggering events only requires a knowledge of server initiated actions and can be done without retrieving RAID configuration information. Sending the PFA initiation command is also accomplished without retrieving RAID configuration information from the RAID controller. Therefore, Applications submit that Smith does not teach retrieving RAID configuration

information from a RAID controller as claimed by the present invention.

With regards to the limitation of quiescing the RAID controller, Smith does not teach quiescing the RAID controller. In addition, it is not obvious to slow down the RAID controller or terminate processes in the RAID controller while the disk drives perform PFA. The RAID controller can continue to function during the PFA. Therefore, Smith does not teach or suggest the limitation of quiescing the RAID controller.

As to the limitation of emulating the RAID controller, Smith does not teach emulating a RAID controller. In addition, it is not inherent in the system of Smith to emulate the RAID controller as the server only initiates PFA on the disk drives. PFA does not require the RAID controller as the disk drives perform PFA autonomously. Smith, Page 2, ¶ 14, lines 1-2. Therefore emulating the RAID controller is not inherent in Smith.

With regards to the limitation of conducting RAID operations, Smith does not teach conducting RAID operations. As discussed above, the PFA function of Smith is performed autonomously by the disk drives. Smith, Page 2, ¶ 14, lines 1-2. Applicants submit that Smith does not disclose conducting RAID operations.

Because neither Smith nor Wang disclose *detecting a RAID controller fault, retrieving RAID configuration information from the RAID controller, quiescing the RAID controller, and directing storage commands to the storage adapter so that the storage adapter emulates the RAID controller in conducting RAID operations on a storage array* as claimed by the present invention, Applicants submit that claims 1, 13, 24, 25, and 29 are allowable.

Claims 7, 8 14-16, and 26 are canceled. Applicants submit that claims 3, 5, 6, 12, 23, and

31-35 are allowable as depending from allowable claims.

Response to rejections of claims under 35 U.S.C. § 103(a)

Claims 9-11, 18-22, 27, 28, and 30 stand rejected under 35 U.S.C. § 103(a) as being obvious over Smith. Claims 2 and 4 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Smith in view of DeKoning. Claim 17 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Smith in view of Wang. Applicants respectfully traverse these rejections.

With regards to claims 11 and 20, Applicants have amended claims 11 and 20 to remove the limitation "...diagnostic operations..." Smith does teach diagnostic operations (PFA). Smith, page 1, ¶ 4, lines 1-2. However, Smith does not teach "...storage operations are selected from the group consisting of read operations, write operations, recovery operations, formatting operations, and firmware update operations..." as claimed in claim 20, and new claims 36-39. Applicants therefore submit that claims 11, 20 and 36-38 are allowable.

Claims 17, 19, and 28 are canceled. Applicants submit that claims 2, 4, 9, 10, 18, 21, 22, 27, and 30 are allowable as depending from allowable claims.

As a result of the presented remarks, Applicants assert that claims 1-6, 9, 11-13, 18, 20-25, 27, and 29-38 are in condition for prompt allowance. Should additional information be required regarding the traversal of the rejections of the claims enumerated above, Examiner is respectfully asked to notify Applicants of such need. If any impediments to the prompt

allowance of the claims can be resolved by a telephone conversation, the Examiner is respectfully requested to contact the undersigned.

Respectfully submitted,

/Brian C. Kunzler/

Brian C. Kunzler
Reg. No. 38,527
Attorney for Applicant

Date: September 28, 2006
8 East Broadway, Suite 600
Salt Lake City, UT 84111
Telephone (801) 994-4646
Fax (801) 531-1929